

REMARKS

Claims 1-31 are pending in the present application.

The rejection of Claims 1, 6-11, 16, and 17 under 35 U.S.C. §103 over Rau et al or Suzuki et al or Mayer et al is obviated in part by amendment and traversed in part.

The present invention provides, in part, an aqueous emulsion composition comprising:
a high-solid-content emulsion compound which comprises:

- (A) 100 parts by weight (solid basis) of at least one latex or emulsion selected from the group consisting of styrene-butadiene copolymer latices, acrylic resin emulsions, ethylene-vinyl acetate copolymer emulsions, acrylonitrile-butadiene copolymer latices, urethane resin emulsions, and natural rubber latices,
- (B) 0.3 to 2 parts by weight of a dispersing agent,
- (C) 0.5 to 5 parts by weight of a crosslinking agent, wherein said crosslinking agent is not a polyisocyanate compound,
- (D) 0.1 to 4 parts by weight of an anti-foaming agent, and
- (E) 100 to 600 parts by weight of at least one powdered filler selected from the group consisting of calcium carbonate, aluminum hydroxide, silica sand, and barium sulfate; and

0.5 to 30 parts by weight of a polyisocyanate compound having reactive isocyanate group, wherein the polyisocyanate compound is added to the high-solid-content emulsion compound. Such a composition is not obvious in view of the art of record for the reasons set forth below.

Rau et al disclose an aqueous formulation of copolymer latices and polyisocyanate dispersions, containing from 5 to 40% by weight of one or more synthetic resins of: (a) from 0.1 to 20 parts by weight of one or more monoolefinically unsaturated monomers which carry

one or more groups which are reactive with isocyanates and (b) from 80 to 99.9 parts by weight of one or more mono- or diolefinitely unsaturated monomers which are copolymerizable with (a) and have no acidic hydrogen atoms; from 0.5 to 5% by weight of one or more finely divided, stabilized polyisocyanates; effective amounts of dispersants; and from 5 to 40% by weight of one or more finely divided fillers (column 1, lines 5-22).

However, at no point do Rau et al disclose or suggest the addition of 0.5 to 5 parts by weight of a crosslinking agent, wherein said crosslinking agent is not a polyisocyanate compound, or the addition of from 0.1 to 4 parts by weight of an anti-foaming agent. Moreover, Rau et al provide no suggestion of the advantages flowing from the inclusion of these components. Accordingly, the present invention would not be obvious in view of the disclosure of Rau et al.

Suzuki et al disclose an adhesive sheet comprising a base sheet, an undercoat layer formed on the base sheet, a release agent layer formed on the undercoat layer, an adhesive layer formed on the release agent layer and a face stock disposed on the adhesive layer (Abstract). The undercoat layer of Suzuki et al comprises (a) a copolymer obtained by emulsion-copolymerizing at least one hydroxyl group-containing (meth)acrylic ester with at least one of other monomers copolymerizable therewith and (b) a pigment (Abstract).

In an attempt to parse together the remaining components of the inventive composition of the present invention, the Examiner cites column 5, lines 3-25 as disclosing an emulsifier, which the Examiner qualifies as a dispersing agent (component (B)). However, the presently claimed invention requires the presence of 0.3 to 2 parts by weight (0.05 to 1 %¹) of a dispersing agent. As disclosed on page 8, line 21 to page 9, line 1, "the use of less than 0.3 parts by weight of component (B) is not enough to uniformly disperse a filler. On the other hand, when component (B) is used in an amount of more than 2 parts by

¹ Percent composition based on the claimed parts by weight range of the individual component divided by the total parts by weight for all components in the composition.

weight, the aqueous emulsion composition finally obtained cannot keep its viscosity; the composition thus undergoes separation, and a filler settles." In contrast, Suzuki et al disclose that the emulsifier is present at 2-6 weight %, based on the total monomer weight (column 4, lines 61-64). Suzuki et al further disclose that when the proportion of the emulsifier is less than 2 weight %, the stability of the resultant emulsion tends to be insufficient and the particle size of the copolymer is increased (column 4, lines 64-67). Therefore, Suzuki et al effectively teach away from the claimed invention and as such the present invention would not be obvious in view of this disclosure.

In addition, the Examiner points column 9, lines 20-29 of Suzuki et al as disclosing the inclusion of antifoaming agents. However, Applicants point out that the antifoaming agents of Suzuki et al are not added to the same layer (composition) as the other components cited by the Examiner. The polymer, pigment, emulsifier, and polyisocyanate of Suzuki et al are added to the undercoat layer, whereas the antifoam is added to the face stock coating layer. At no point do Suzuki et al disclose or suggest adding the antifoam to the polymer, pigment, emulsifier, and polyisocyanate.

Moreover, at no point do Suzuki et al disclose or suggest the addition of 0.5 to 5 parts by weight of a crosslinking agent, wherein said crosslinking agent is not a polyisocyanate compound, or the advantages flowing therefrom. Applicants submit that the disclosure of Suzuki et al fails to meet the standard for obviousness.

Mayer et al disclose a coating composition that contains an acrylate copolymer binder, a nonblocked polyisocyanate crosslinking agent, and a water-based component (Abstract). Mayer et al further discloses that component (I) (the acrylate copolymer binder) may contain at least one further conventional coatings additive, such as antifoams, dispersing aids, emulsifiers, and leveling auxiliaries (column 17, lines 1-4). However, Mayer et al provides no disclosure or suggestion to lead the artisan to the claimed concentrations of these

components. Moreover, Mayer et al do not provide any expectation that the inclusion of these components would have any beneficial effect.

Applicants submit that this disclosure by Mayer et al does not render obvious the presently claimed compounds. MPEP §2131.03 states:

When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute."

Applicants submit that Mayer et al do not provide any examples, which fall within the scope of Claim 1. Accordingly, Mayer et al fail to provide sufficient specificity to render obvious the claimed composition.

Moreover, at no point do Mayer et al disclose or suggest the addition of 0.5 to 5 parts by weight of a crosslinking agent, wherein said crosslinking agent is not a polyisocyanate compound, or the advantages flowing therefrom.

Citing In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974), MPEP §2143.03 states: "To establish a prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." Applicants submit that the disclosures of Rau et al, Suzuki et al, and Mayer et al fail to meet this requirement, and as such the artisan would have no reasonable motivation to compile the composition of the present invention or any reasonable expectation of the advantageous obtained thereby.

For the foregoing reasons, Applicants submit that the present invention is not obvious in view of Rau et al, Suzuki et al, or Mayer et al. Withdrawal of these grounds of rejection is respectfully requested.

The rejection of Claims 1, 6-11, 16, and 17 under 35 U.S.C. §112 is obviated by amendment.

As suggested by the Examiner, Applicants have amended the claims to exclude polyisocyanate from component (C), the cross-linking agent. The claims now clearly delineate the distinction between the cross-linking agent (component (C)) and the polyisocyanate as separate compounds.

The amendment of Claim 1 is supported by the specification as filed in its entirety, in particular by page 4, lines 8-15, page 9, lines 2-16, and page 11, line 5-page 14, line 16. From the disclosure of the present invention it is clear that the polyisocyanate compounds is a curing agent that is added following mixing of components (A) – (E). It is also clear that, in accordance with the present invention, the polyisocyanate compounds are not cross-linking agents as contemplated for component (C).

Withdrawal of this ground of rejection is requested.

Claims 12-15 have been amended to depend from Claim 1. Accordingly, Applicants request withdrawal of the classification of these claims as part of the non-elected Group in the Restriction Requirement of March 21, 2002. By virtue of the amendment present herein, Claims 12-15 should be reclassified as part of elected Group I.

Applicants submit that the present application is in condition for allowance. Early notification to this effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Norman F. Oblon
Attorney of Record
Registration No. 24,618

Vincent K. Shier, Ph.D.
Registration No. 50,552



22850

Tel.: (703) 413-3000
Fax: (703) 412-2220
NFO:VKS



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IN THE CLAIMS

1. (Amended) An aqueous emulsion composition comprising[;]:
a high-solid-content emulsion compound which comprises[;]:
 - (A) 100 parts by weight (solid basis) of at least one latex or emulsion selected from the group consisting of styrene-butadiene copolymer latices, acrylic resin emulsions, ethylene-vinyl acetate copolymer emulsions, acrylonitrile-butadiene copolymer latices, urethane resin emulsions, and natural rubber latices,
 - (B) 0.3 to 2 parts by weight of a dispersing agent,
 - (C) 0.5 to 5 parts by weight of a crosslinking agent, wherein said crosslinking agent is not a polyisocyanate compound,
 - (D) 0.1 to 4 parts by weight of an anti-foaming agent, and
 - (E) 100 to 600 parts by weight of at least one powdered filler selected from the group consisting of calcium carbonate, aluminum hydroxide, silica sand, and barium sulfate; and

[F] 0.5 to 30 parts by weight of a polyisocyanate compound having reactive isocyanate group, wherein the polyisocyanate compound is added to the high-solid-content emulsion compound.--

--12. (Amended) The aqueous emulsion according to Claim [2] 1, wherein said dispersing agent is an inorganic dispersing agent comprising triopolyphosphates or pyrophosphates or both.

13. (Amended) The aqueous emulsion according to Claim [2] 1, wherein said dispersing agent is a polymeric dispersing agent comprising polycarboxylates or formalin-condensed naphthalenesulfonates or both.

14. (Amended) The aqueous emulsion according to Claim [2] 1, wherein said crosslinking agent comprises sulfur or zinc oxide or both.

15. (Amended) The aqueous emulsion according to Claim [2] 1, wherein said anti-foaming agent comprises mineral oil non-ionic surfactants, polydimethylsiloxane oils, ethylene-oxide-or propylene-oxide modified dimethyl silicones or emulsions thereof, mineral oils or acetylene alcohols.--

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